

Polyester Resin Operations

Notes: Several districts have adopted polyester resin operations rules that establish VOC content limitations. Determining which rule is the most stringent is difficult because: 1) different rules exempt different compounds; 2) within the same limit, different districts may use different units of measurement that are difficult to compare; 3) some districts have a general category, while other districts break the category into specific components; and 4) the applicability of each rule is not necessarily the same from district to district. Each rule should be looked at as a system of emission limits and performance requirements designed to meet the requirements of a specific district's program.

Table I (1 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date					
		Bay Area AQMD Rule 8-50 Polyester Resin Operations Last Revised 12/20/95	Colusa APCD Rule 2-37 VOC Control Measure for Polyester Resin Operations Last Revised 1/23/96	Sacramento AQMD Rule 465 Polyester Resin Operations Last Revised 2/6/97	Santa Barbara APCD Rule 349 Polyester Resin Operations Last Revised 4/27/93	South Coast AQMD Rule 1162 Polyester Resin Operations Last Revised 5/13/94	
		Performance Standard					
Compounds exempt in all rules.	VOC	Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane	Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane	Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane	Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane	Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane	Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane

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		Performance Standard									
There are approximately 20 additional compounds exempt in the following districts, unless indicated otherwise: COLAPCD SACAQMD SBAPCD SCAQMD SDAPCD SJUAPCD YSAQMD VENAPCD	VOC		Does not exempt the 20 additional compounds, exempts: acetone, parachlorobenzotrifluoride (PCBTF), cyclic, branched or linear completely methylated siloxanes (VMS), and cetone (sic).		The 20 additional compounds.		Including the following: ethane, parachlorobenzotrifluoride (PCBTF), acetone, perchloroethylene (tetrachloroethylene), 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca), 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb), 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee), and cyclic, branched, or linear completely methylated siloxanes.		Including the following: Ethane, acetone, parachlorobenzotrifluoride (PCBTF), and cyclic, branched or linear completely methylated siloxanes (VMS).		Including carbon tetrachloride.

Table I (1 of 3)
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		Performance Standard									
General Polyester Resin Material	VOC	x	<35% by weight monomer content	x	<35% by weight monomer content	x	<35% by weight monomer content	x	<35% by weight monomer content	x	<35% by weight monomer content
Resin Containing Vapor Suppressant	VOC/ROC	x	weight loss from VOC emissions <60 g/sq. m	x	weight loss from VOC emissions <60 g/sq. m	x	weight loss from VOC emissions <60 g/sq. m	x	weight loss from ROC emissions <60 g/sq. m	x	weight loss from VOC emissions <60 g/sq. m
Closed-mold System	VOC		Yes, no limit.	x	Yes, weight loss < 4%		Yes, no limit.		Yes, no limit.	x	Yes, weight loss < 4%
High Strength Materials	VOC		None.	x	<48% monomer content by weight		None.		None.	x	<48% monomer content by weight
Specialty Resins	VOC		See corrosion-resistant materials and fire retardant materials.		See high strength materials, corrosion-resistant materials and fire retardant materials.	x	<50% monomer content by weight	x	<50% monomer content by weight		See high strength materials, corrosion-resistant materials and fire retardant materials.
Corrosion-resistant Materials	VOC		<50% monomer content by weight		<50% monomer content by weight		See Specialty Resins.		See Specialty Resins.	x	<48% monomer content by weight
Fire Retardant Materials	VOC		<50% monomer content by weight	x	<42% monomer content by weight		See Specialty Resins.		See Specialty Resins.	x	<42% monomer content by weight
Cleaning Materials	VOC		<200 g VOC/l material	x	When cleaning		Cleaning materials		None.	x	Use cleaning materials

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		Performance Standard					
Cleaning Materials (continued)		Shall not use organic compounds for the clean-up of spray equipment including spray lines unless equipment for collecting the cleaning material and minimizing their evaporation to the atmosphere is used.	materials containing >1.7 lbs of VOC per gallon or having initial boiling point < 190° C exceeds 4 gallons per day, a cleaning material reclamation system with 80% efficiency shall be used. Solvent residues for the system shall be < 20% VOC by weight.	containing >1.7 lb VOC per gallon(204 gm/l), shall not be used except in enclosed gun cleaners or to clean molds, spray equipment or other dispensing equipment tools used in gel coat or specialty resin operations, provided that the cleaning materials < 4 gallons per week.		with <50 grams VOC per liter (0.42 lb VOC per gallon). A person shall use closed containers or hand held spray bottles from which solvents are applied without a propellant-induced force, cleaning equipment which has a solvent container that can be and is closed during cleaning operations, and a solvent flushing method where the cleaning solvent is discharged into a container which is closed except for solvent collection openings and the discharged solvent must be collected into containers without atomizing into the open air.	

Table I (1 of 3)
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		Performance Standard									
Gel Coat	VOC	x	<250 g VOC per l coating applied		See clear gel coat and pigmented gel coat.		See clear gel coat and pigmented gel coat.		See clear gel coat and pigmented gel coat.		See clear gel coat and pigmented gel coat.
Clear Gel Coat	VOC		See gel coat.	x	<50% monomer content by weight	x	<50% monomer content by weight	x	<50% monomer content by weight	x	<50% monomer content by weight
Pigmented Gel Coat	VOC		See gel coat.	x	<45% monomer content by weight	x	<45% monomer content by weight	x	<45% monomer content by weight	x	<45% monomer content by weight
Alternative Emission Control Requirements (in lieu of meeting process standards)	VOC		>85% control and capture efficiency		>85% control and capture efficiency		>85% control and capture efficiency, written approval by APCO, operation under APCO approved operation and maintenance plan		>85% control and capture efficiency	x	>90% control and capture efficiency
Pultrusion Operations	VOC		None.	x	Shall have covered wet-out baths. From exit of the bath to the die, all but 18 inches of the preform distance shall be enclosed to minimize airflow. < 3% weight loss		None.		None.	x	Shall have covered wet- out baths. From exit of the bath to the die, all but 18 inches of the preform distance shall be enclosed to minimize airflow. < 3% weight loss
Surface Preparation	VOC		None.		None.		None.		None.		None.

Table I (1 of 3)
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		Performance Standard									
Spraying Operations	VOC		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.	x	Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray. For touch-up and repair, a handheld air atomized spray gun with a resin container as part of the gun may be used.
Resin Baths	VOC	x	Shall be covered.		None.		None.		None.		None.
Compound Limitations	VOC		None.		None.		None.		None.		None.

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		Performance Standard					
Monitoring and Records	VOC/ROC	<p>N Shall maintain list of polyester resins, catalyst, cleaning material, % VOC in polyester resin materials, and grams of VOC per liter for cleaning materials.</p> <p>For vapor suppressed resins maintain list of weight loss during polymerization, monomer % and gel time.</p> <p>Daily records of amount of polyester resin materials and cleaning materials used, volume of resin and cleaning materials used for touch-up and repair, and hours of operation and key system operating parameters.</p>	<p>N Shall maintain list of polyester resins, catalyst, cleaning material, % VOC in polyester resin materials, and grams of VOC per liter for cleaning materials.</p> <p>For vapor suppressed resins maintain list of weight loss during polymerization, monomer % and gel time.</p> <p>Records of amount of polyester resin materials and cleaning materials used, volume of resin and cleaning materials used for touch-up and repair, and record of hours of operation and key system operating parameters.</p>	<p>N Shall maintain records of type and quantity of all resins, catalysts, cleaning materials, filler material, pigment materials, and all additional additives used in resins as applied.</p> <p>Records of monomer content, in weight %, all resin materials used or stored at the facility, VOC content of all cleaning materials used and stored at the facility, and records of hours of operation and key operating parameters.</p> <p>For vapor suppressed resins maintain list of weight loss during polymerization, and amount used.</p>	<p>N Shall maintain list of polyester resins, catalyst, cleaning material, % ROC in polyester resin materials, and grams of ROC per liter for cleaning materials.</p> <p>For vapor suppressed resins maintain list of weight loss during polymerization, monomer % and gel time.</p> <p>Records of key operating parameters for each day of operation for add-on control equipment.</p> <p>All records shall be retained for the previous 24 month period.</p>	<p>N Shall maintain daily records of manufacturer's name, type and amount of each polyester resin, corrosion resistant, fire retardant, high strength materials and gel coats used, % weight of monomer, amount of VOC-containing materials, VOC content in grams/liter, for vapor suppressed resins a certificate from a resin manufacturer for each resin type, and for closed-mold and pultrusion operations the % weight loss of polyester resin materials for each application.</p> <p>Records of cleaning solvents subject to Rule 1171 shall be maintained pursuant to</p>	
Monitoring and Records							

Table I (1 of 3)
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		Performance Standard					
(continued)		All records shall be retained for the previous 24 month period.	All records shall be retained for the previous 24 month period.	Records maintained on 1)monthly basis if total VOC emissions >5 tons/year, 2)annual basis if total VOC emissions < or equal to 5 tons/year, 3) all records shall be maintained for a continuous 3 year period. If at any time a source uses a coating which does not comply with the standardsin Section 301, daily records regarding the use and lack of use of that non-compliant resin shall be maintained.		Rule 109. Maintain daily records of all key operating parameters.	

Table I (1 of 3)
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		Performance Standard									
Storage	VOC/ROC	x	Use closed containers for storage of all polyester resin materials, cleaning materials and any unused VOC-containing materials except when accessed for use.	x	Use closed containers for storage of all uncured polyester resin materials, cleaning materials and any unused VOC-containing materials except when accessed for use.	x	Use closed containers for storage of all polyester resin materials, cleaning materials and any unused VOC-containing materials except when accessed for use.	x	Use closed containers for storage of all polyester resin materials, cleaning materials and any unused ROC-containing materials except when accessed for use.		Use closed containers for storage of all resin materials except when accessed for use.
Disposal	VOC/ROC	x	Shall use self-closing containers for the disposal of all polyester resin materials, cleaning materials, waste materials, and any unused VOC containing materials.		Shall use self-closing containers for the disposal of all uncured polyester resin materials, cleaning materials, waste materials, and any unused VOC containing materials.		Shall use closed containers for the disposal of all uncured polyester resin materials, cleaning materials, waste materials, and any unused VOC containing materials.	x	Use closed containers for disposal of all polyester resin materials, cleaning materials and any unused ROC-containing materials except when accessed for use.		Use closed containers for disposal of all resin materials except when accessed for use.

Table I (2 of 3)
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		Performance Standard									
Compounds exempt in all rules.	VOC		Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane		Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane		Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane		Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane		Carbon monoxide Carbon dioxide Carbonic acid Metallic carbides or carbonates Ammonium carbonate Methane
There are approximately 20 additional compounds exempt in the following districts, unless indicated otherwise: COLAPCD SACAQMD SBAPCD SCAQMD SDAPCD SJUAPCD YSAQMD VENAPCD	VOC		Including the following: perchloroethylene (tetrachloroethylene), acetone, ethane, 1-chloro-4-trifluoromethyl benzene (parachlorobenzotrifluoride, PCBTF, and cyclic, branched, or linear completely methylated siloxanes (VMS).		Does not exempt the 20 additional compounds.		Including the following: ethane, acetone, parachlorobenzotrifluoride, and cyclic, branched, or linear completely methylated siloxane compounds.		The 20 additional compounds.		Including the following: cyclic, branched, or linear completely methylated siloxanes (VMS).
General Polyester Resin Material	VOC	x	<35% by weight monomer content	x	<35% by weight monomer content	x	<35% by weight monomer content	x	<35% by weight monomer content	x	<35% by weight monomer content

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		Performance Standard									
Resin Containing Vapor Suppressant	VOC	x	weight loss from VOC emissions < 60 g/sq. m	x	weight loss from VOC emissions < 60 g/sq. m	x	weight loss from VOC emissions < 60 g/sq. m	x	weight loss from VOC emissions < 60 g/sq. m	x	weight loss from ROC emissions <60 g/sq. m
Closed-mold System	VOC		Yes, no limit.		Yes, no limit.		Yes, no limit.		Yes, no limit.		Yes, no limit.
High Strength Materials	VOC		None.	x	<48% monomer content by weight		None.		None.		See Specialty Resins.
Specialty Resins	VOC		See corrosion-resistant materials and fire retardant materials.	x	<50% monomer content by weight	x	Use low VOC with < 50% monomer content by weight	x	Use low VOC with < 50% monomer content by weight	x	<50% monomer content by weight
Corrosion-resistant Materials	VOC		<50% monomer content by weight	x	<48% monomer content by weight		See Specialty Resins.		See Specialty Resins.		See Specialty Resins.
Fire Retardant Materials	VOC		<50% monomer content by weight	x	<42% monomer content by weight		See Specialty Resins.		See Specialty Resins.		See Specialty Resins.
Cleaning Materials Cleaning Materials (continued)	VOC	x	A VOC reclamation system shall be used unless the materials contain < 1.7 lb VOC per gallon (200 gm/l), or the materials have	x	When cleaning materials containing >1.7 lbs of VOC per gallon or having initial boiling point < 190° C exceeds 4 gallons per	x	Cleaning materials containing > 1.7 lb VOC/gallon shall not be used except; 1)in enclosed equipment cleaners; or	x	When cleaning materials containing >1.7 lbs of VOC per gallon or having initial boiling point < 190° C exceeds 4 gallons per	x	When cleaning materials containing >1.7 lbs of ROC per gallon or having initial boiling point < 190° C exceeds 15 gallons per calendar

Table I (2 of 3)
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		Performance Standard									
			initial boiling points > 190°C or the combined usage of materials not complying with either condition is < 0.5 gallons average per operating day calculated from monthly monitoring records. Solvent residue from reclamation system shall contain < or equal to 20% VOC by weight.		day, a cleaning material reclamation system with >80% efficiency shall be used. Solvent residues for the system shall be < 20% VOC by weight.		2)to clean molds, spray equipment or other dispensing equipment tools used in gel coat or specialty resin operations provided that the use of cleaning materials <4 gallons/day.		day, a cleaning material reclamation system with >80% efficiency shall be used. Solvent residues for the system shall be < 20% VOC by weight.		week, a reclamation system shall be used. Residues for the system shall be < 20% ROC by weight.
Gel Coat	VOC		See clear gel coat and pigmented gel coat.		See clear gel coat and pigmented gel coat.		See clear gel coat and pigmented gel coat.		Use low VOC with < 45% monomer content by weight (treated as pigmented gel coat due to clear gel coat standard)		See clear gel coat and pigmented gel coat.
Clear Gel Coat	VOC	x	<50% monomer content by weight	x	<50% monomer content by weight	x	Use low VOC with < 50% monomer content by weight	x	Use low VOC with < 50% monomer content by weight	x	<50% monomer content by weight
Pigmented Gel Coat	VOC	x	<45% monomer content by weight	x	<45% monomer content by weight	x	Use low VOC with < 45% monomer content		See Gel Coat.	x	<45% monomer content by weight

Table I (2 of 3)
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		Performance Standard									
							by weight				
Alternative Emission Control Requirements (in lieu of meeting process standards)	VOC		None.		>85% control and capture efficiency		>85% control and capture efficiency		>85% control and capture efficiency		>85% control and capture efficiency
Pultrusion Operations	VOC		None.		None.		None.		None.		None.

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		Performance Standard					
Surface Preparation	VOC	x Conduct all dry sanding, grinding and cutting operations of polyester resin which contains fiberglass either inside a controlled enclosure or using a controlled process. For marine vessel repair operations this requirement shall apply only for sanding, grinding or cutting operations conducted on the exterior of a vessel hull. Excludes portable drilling operations.	None.	None.	None.	None.	

Table I (2 of 3)
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		Performance Standard										
Spraying Operations	VOC		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.	
		x	For touch-up and repair, a handheld air atomized spray gun with a resin container as part of the gun may be used.						x	For touch-up and repair, a handheld air atomized spray gun with a resin container of no more than one quart capacity as part of the gun may be used.		
Resin Baths	VOC		None.		None.		None.		None.		None.	

Table I (2 of 3)
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		Performance Standard					
Compound Limitations	VOC	<p>Not use a polyester resin or cleaning material subject to this rule that, after December 4, 1990, was newly formulated to contain or reformulated to increase the content of, methylene chloride, CFC-11, CFC-12, CFC-113, CFC-114 or CFC-115.</p> <p>A person shall not sell or, offer for sale, a polyester resin or cleaning material subject to this rule that, after December 4, 1990, was newly formulated to contain or reformulated to increase the content of, methylene chloride, CFC-11, CFC-12, CFC-113, CFC-114 or CFC-115.</p>	None.	None.	<p>A person shall not specify the use of any gel coat or polyester resin material subject to the provisions of this rule that does not meet the limits and requirements of this rule where such applications result in a violation of this rule. The requirements of this Section shall apply to all written or oral contracts.</p> <p>A person shall not sell or offer for sale any gel coat or polyester resin material subject to the provisions of this rule that does not meet the limits and requirements of this rule where such applications result in a violation of this rule.</p>	None.	
Compound Limitations							

Table I (2 of 3)
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		Performance Standard					
(continued)		A person shall not manufacture, sell, offer for sale, or supply any coating or cleaning materials for use in polyester resin operations unless polyester resin or cleaning material container displays the content of methylene chloride, CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), or chloropentafluoroethane (CFC-115).					

Table I (2 of 3)
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		San Diego APCD Rule 67.12 Polyester Resin Operations Effective 5/15/96	Shasta AQMD Rule 3: 13 Polyester Resin Operations Last Revised 6/6/95	San Joaquin APCD Rule 4684 Polyester Resin Operations Adopted 5/19/94	Yolo Solano AQMD Rule 2.30 Polyester Resin Operations Last Revised 8/25/93	Ventura APCD Rule 74-14 Polyester Resin Material Operations Revised 5/26/92	
		Performance Standard					
Monitoring and Records	VOC	N Q Maintain current records of polyester resin materials and gel coats used, which provides manufacturer identification, material specifications, monomer content, content of any catalysts, fillers, and/or diluents, including thinners, and type of each resin or gel coat. Also maintain records of content of methylene chloride, CFC-11, CFC-12, CFC-113, CFC-114, CFC-115 contained in any polyester resin material or cleaning material used. For vapor suppressed resins maintain records showing manufacturer's information on the weight loss during polymerization.	N Q Shall maintain list of polyester resins, catalyst, cleaning material, % monomer in each polyester resin materials, and grams of VOC per liter for cleaning materials. For vapor suppressed resins maintain list of weight loss (gm/sq. m) during polymerization, monomer % and gel time. Records of amount of polyester resin materials and cleaning materials used, volume of resin and cleaning materials used for touch-up and repair, and record of hours of operation and key system operating parameters.	N Q Daily records of the type and quantity of all resins, catalysts, and cleaning materials used. Records of VOC content, % weight, all polyester resin materials used or stored at the facility, VOC content of all cleaning materials used and stored at the facility, hours of operation, and key operating parameters for any add-on control equipment. For vapor suppressed resins maintain list of weight loss (gm/sq. m) during polymerization. All records shall be retained for the	N Q Shall maintain list of polyester resins, catalyst, cleaning material, % VOC in polyester resin materials, and grams of VOC per liter for cleaning materials. For vapor suppressed resins maintain list of weight loss during polymerization, monomer % and gel time. Daily records of amount of polyester resin materials and cleaning materials used, volume of resin and cleaning materials used for touch-up and repair, and hours of operation and key system operating parameters.	N Q Weekly reports of the manufacturer and product number of each polyester resin material and cleaning material used, amount of cleaning material both used and reclaimed or recycled, and the application method for each polyester resin and cleaning material used. Records of emission rate of each polyester resin material used, as either the ROC loss rate in grams/sq. m or as % monomer content, gel time, and ROC content in lb ROC per gallon of cleaning material. Daily reports of control efficiency monitoring information, and the quantity and type of polyester resin material	
Monitoring and Records (continued)							

Table I (2 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date					
		San Diego APCD Rule 67.12 Polyester Resin Operations Effective 5/15/96	Shasta AQMD Rule 3: 13 Polyester Resin Operations Last Revised 6/6/95	San Joaquin APCD Rule 4684 Polyester Resin Operations Adopted 5/19/94	Yolo Solano AQMD Rule 2.30 Polyester Resin Operations Last Revised 8/25/93	Ventura APCD Rule 74-14 Polyester Resin Material Operations Revised 5/26/92	
		Performance Standard					
		Maintain daily records of manufacturer's identification and amount of each polyester resin material and cleaning material used. Retain records for at least 3 years.	All records shall be retained for the previous 24 month period.	previous 24 month period.	All records shall be retained for the previous 24 month period.	used. All records shall be retained for the previous 24 month period.	
Storage	VOC	Use self-closing containers for all polyester resin, VOC containing cleaning materials and solvent-laden rags including waster materials except when accessed for use.	Use closed containers for storage of all uncured polyester resin materials, cleaning materials and any unused VOC-containing materials except when accessed for use.	x Use closed containers for storage of all polyester resin materials, cleaning materials or other VOC-containing materials except when accessed for use.	x Use closed containers for storage of all polyester resin materials, cleaning materials and any unused VOC-containing materials except when accessed for use.	Use closed containers for storage of all materials containing reactive organic compounds, used or unused, including but not limited to semi-solid or liquid polyester resin materials and solid or liquid cleaning materials.	

Table I (2 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date									
		San Diego APCD Rule 67.12 Polyester Resin Operations Effective 5/15/96		Shasta AQMD Rule 3: 13 Polyester Resin Operations Last Revised 6/6/95		San Joaquin APCD Rule 4684 Polyester Resin Operations Adopted 5/19/94		Yolo Solano AQMD Rule 2.30 Polyester Resin Operations Last Revised 8/25/93		Ventura APCD Rule 74-14 Polyester Resin Material Operations Revised 5/26/92	
		Performance Standard									
Disposal	VOC		See storage.		Use self-closing containers for the disposal of all uncured polyester resin materials, cleaning materials, waste materials, and any unused VOC containing materials.		Use self-closing containers for the disposal of all uncured polyester resin materials, cleaning materials, or any unused VOC containing materials.	x	Use self-closing containers for the disposal of all polyester resin materials, cleaning materials, waste materials, and any unused VOC containing materials.		See storage.

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date									
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91									
		Performance Standard									
Compounds exempt in all rules.	VOC	Carbon monoxide									
		Carbon dioxide									
		Carbonic acid									
		Metallic carbides or carbonates									
		Ammonium carbonate									
		Methane									

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date						
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91						
		Performance Standard						
There are approximately 20 additional compounds exempt in the following districts, unless indicated otherwise: COLAPCD SACAQMD SBAPCD SCAQMD SDAPCD SJUAPCD YSAQMD VENAPCD		Some of the 20 compounds are not exempt, which includes the following: 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124), 1,1,1-trifluoroethane (HFC-143a), 1,1-difluoroethane (HFC-152a), and saturated perfluorocarbons containing sulfur with sulfur bonds only to carbon and fluorine, cyclic, branched, or linear completely fluorinated alkanes, ethers with no unsaturations, and tertiary amines with no unsaturations.						

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date									
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91									
		Performance Standard									
General Polyester Resin Material	VOC	x	<35% by weight monomer content								
Resin Containing Vapor Suppressant	VOC	x	weight loss from VOC emissions < 60 g/sq. m								
Closed-mold System	VOC		Yes, no limit.								
High Strength Materials	VOC		See Specialty Resins.								
Specialty Resins	VOC	x	<50% monomer content by weight								
Corrosion-resistant Materials	VOC		See Specialty Resins.								
Fire Retardant Materials	VOC		See Specialty Resins.								

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date									
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91									
		Performance Standard									
Cleaning Materials	VOC		When cleaning materials containing >1.7 lbs of VOC per gallon or having initial boiling point < 190° C exceeds 4 gallons per day, a cleaning material reclamation system with >80% efficiency shall be used. Solvent residues for the system shall be < 20% VOC by weight.								
Gel Coat	VOC		See clear gel coat and pigmented gel coat.								
Clear Gel Coat	VOC	x	<50% monomer content by weight								
Pigmented Gel Coat	VOC	x	<45% monomer content by weight								

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date									
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91									
		Performance Standard									
Alternative Emission Control Requirements (in lieu of meeting process standards)	VOC		>85% control and capture efficiency								
Pultrusion Operations	VOC		None.								
Surface Preparation	VOC		None.								
Spraying Operations	VOC		Use airless spray, air-assisted airless spray, electrostatic spray, high-volume/low-pressure spray.								
Resin Baths	VOC		None.								
Compound Limitations	VOC		None.								
Monitoring and Records	VOC	N	Shall maintain list of polyester resins, catalyst, cleaning material, % VOC in polyester resin materials, and grams of VOC per liter for cleaning materials.								
Monitoring and Records (continued)		Q									

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date					
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91					
		Performance Standard					
		<p>For vapor suppressed resins maintain list of weight loss during polymerization, monomer % and gel time.</p> <p>Daily records of amount of polyester resin materials and cleaning materials used, and volume of resin and cleaning materials used for touch-up and repair.</p> <p>Retain all records for the previous 24 month period.</p>					

Table I (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Regulated Component	Pollutant	Rule/Measure/Date							
		Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91							
		Performance Standard							
Storage	VOC	Use closed containers to store all polyester resin materials, cleaning materials, and any unused VOC-containing materials, and scrap materials resulting from cutting and grinding of freshly cured resins except when accessed for use.							
Storage (continued)									
Disposal	VOC	Use self-closing containers for disposal of all uncured polyester resin materials, cleaning materials, waste materials, and any un-used VOC-containing materials.							

Table II (1 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Rule/Measure	Rule/Measure				
	BAAQMD Rule 8-50 Polyester Resin Operations Last Revised 12/20/95	ColAPCD Rule 2-37 VOC Control Measure for Polyester Resin Operations Last Revised 1/23/96	SACAQMD Rule 465 Polyester Resin Operations Last Revised 2/6/97	SBAPCD Rule 349 Polyester Resin Operations Last Revised 4/27/93	SCAQMD Rule 1162 Polyester Resin Operations Last Revised 5/13/94
Exemptions	Touch-up and repair are exempt from process requirements of 8-50-301.	Touch-up and repair are exempt from process requirements of section 3.	Only record keeping requirements apply when the volume of polyester resin materials used is < 20 gallons/month.	Addition or use of styrene provided that <50 gallons/calendar year is used. However, must maintain records of total styrene used per calendar year.	None.
Applicability	Manufacturing of products using polyester resins.	All commercial, military, and industrial sources performing polyester resin operations.	Persons who operate polyester resin operations within Sacramento County.	All commercial and industrial polyester resin operations.	All polyester resin operations that fabricate, rework, repair, or touch-up products for commercial, military, or industrial use.
Comments		Has the same compound exemptions as Yolo Solano 2.30.		This rule applies to ROC, which in the comparisons was assumed to be equivalent to VOC. Has the same compound exemptions as San Joaquin 4684.	

Table II (2 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Rule/Measure	Rule/Measure				
	SDAPCD Rule 67.12 Polyester Resin Operations Effective 5/15/96	SHAAQMD Rule 3: 13 Polyester Resin Operations Last Revised 6/6/95	SJUAPCD Rule 4684 Polyester Resin Operations Adopted 5/19/94	YSAQMD Rule 2.30 Polyester Resin Operations Last Revised 8/25/93	VENAPCD Rule 74-14 Polyester Resin Material Operations Revised 5/26/92
Exemptions	Any polyester resin operations where the combined consumption of polyester resins, including corrosion resistant resin, fire retardant resin, gel coat, and cleaning materials is < 1 gallon/operating day. Any marine vessel repair operations where the combined consumption of polyester resins, including corrosion resistant resin, fire retardant resin, gel coat, and cleaning materials is < 0.5 gallon/operating day. Any coating subject to Rules 67.3, 67.0 or 67.11.	Touch-up and repair are exempt from Section 300 Standards.	The provisions of this rule, other than the recordkeeping requirements of section 6.1, shall not apply to any polyester resin operation provided the volume of polyester resin materials used is less than 20 gallons/month.	The provisions of Section 300 Standards shall not apply to touch-up and repair.	Any polyester resin operations subject to the requirements of this Rule shall be exempt from the requirements of Rule 66, with the exception of Rule 66.A.7. The provisions of Section B Requirements of this rule shall not apply to stationary sources using less than 20 gallons/month of polyester resin material.
Applicability	Polyester resin operations.	All commercial and industrial stationary sources performing polyester resin operations.	All commercial and industrial polyester resin operations.	All commercial and industrial stationary sources performing polyester resin operations.	Mmanufacture of products from or the use of polyester resin material.

Table II (2 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Rule/Measure	Rule/Measure				
	SDAPCD Rule 67.12 Polyester Resin Operations Effective 5/15/96	SHAAQMD Rule 3: 13 Polyester Resin Operations Last Revised 6/6/95	SJUAPCD Rule 4684 Polyester Resin Operations Adopted 5/19/94	YSAQMD Rule 2.30 Polyester Resin Operations Last Revised 8/25/93	VENAPCD Rule 74-14 Polyester Resin Material Operations Revised 5/26/92
Comments		Has the least amount of compound exemptions.	Has the same compound exemptions as Santa Barbara 349.	Has the same compound exemptions as Colusa 2-37.	This rule applies to ROC, which in the comparisons was assumed to be equivalent to VOC.

Table II (3 of 3)
Identification of Performance Standards
Source Category: Polyester Resin Operations

Rule/Measure	Rule/Measure				
	Determination of RACT/BARCT for Polyester Resin Operations CARB 1/8/91				
Exemptions	Touch-up and repair are exempt from meeting the Standards.				
Applicability	Commercial and industrial polyester resin operations				
Comments					